

NOXIOUS TIMES

a quarterly publication of the California Interagency Noxious Weed Coordinating Committee

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Hefley bill works its way through Washington

*House version of S. 144 provides mechanism
for funding local level weed fighters*

H.R. 119, the House of Representatives bill which would require the Secretary of the Interior to establish a program to provide assistance through States to eligible weed management entities to control or eradicate harmful, nonnative weeds on public and private land, is currently awaiting approval by the House Resources Committee and the House Agricultural Committee. If these committees vote to approve the bill, it will then go to the House floor for voting. Representative Joel Hefley of Colorado proposed the bill on January 7. It is cosponsored by thirteen representatives including Representative Bob Filner of California.

The House Resources Committee, chaired by



Representative Hefley

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Survey Will Find Starthistle Costs

Invasive weed species are a particular problem on agricultural and rangeland in California. However, little research has been done to date to measure their economic consequences. Yellow starthistle, which has invaded vast areas of California with substantial negative implications for agriculture is a good example. There has been no reasonably serious effort to estimate the adverse economic impact on ranchers, farmers and others. The lack of defensible information on losses and associated economic costs makes it difficult for

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Chairperson's Message

Steve Schoenig, CDFA

This year has been a big year for weed growth and budget hardships. The mustards, starthistle and knapweeds look happy and robust. Years like this highlight the magnitude of the weed problem and replenish seedbanks for the future. If only our resources were growing like the weeds. The fiscal hardship in the state puts a damper on growing invasive and noxious weed control programs. However things aren't all bad. Weed Management Areas and local County Government have been increasing their skill at tapping new sources of weed funding. One recent development, which may help in the ability to get more funds directed to weed control at the state and local levels is the creation of a California Action Plan for the Control of Noxious and Invasive Weeds.

The need for this plan was conceived by the California Invasive Weed Awareness Coalition (CalIWAC). The CalIWAC endeavors to increase awareness about noxious and invasive weeds and to increase resources for prevention and control. The CalIWAC enlisted the California Department of Food and Agriculture to take a lead role in the formulation and production of the plan. The CDFA put together a steering committee which comprised a cross section of agencies and interests which developed a processes for soliciting broad input from a cross-section of California. A statewide meeting was convened with over a hundred attendees, the California Noxious and Invasive Weed Summit was held on April 3rd, 2003 in Sacramento. Working groups were the core activity at the meeting, resulting in lists of actions and larger comprehensive needs. These items were grouped according to category.

The Plan is an action plan that will review developed strategies for the control of noxious and invasive weeds, and then list a set of selected actions which will promote and enhance on-the-ground prevention and control. The plan will also list a set of comprehensive needs that represent the future actions and elements which can be attained with a major increase of activity and funding.

Please look forward to the next issue of the Noxious Times which will be devoted to the California Action Plan!

Noxious Times is a publication of the California Interagency Noxious Weed Coordinating Committee. The committee was formed in 1995 when 14 federal, state, and county agencies came together under a Memorandum of Understanding to coordinate the management of noxious weeds. The committee's mission is to facilitate, promote, and coordinate the establishment of an Integrated Pest Management partnership between public and private land managers toward the eradication and control of noxious weeds on federal and state lands and on private lands adjacent to public lands.

The *Noxious Times* newsletter intends to help the committee achieve its goals of coordination and exchange of information by providing land managers throughout the state with information on weed control efforts, news, and successes.

Noxious Times is published quarterly by staff of the Integrated Pest Control Branch at the California Department of Food and Agriculture. We welcome submissions for our upcoming issues. Please send to: CA Department of Food and Agriculture, ATTN: Noxious Times, 1220 N Street, Room A-357, Sacramento, CA 95814 or e-mail: noxtimes@cdfa.ca.gov

If you have a colleague whose name you would like to add to our mailing list, please send mailing information to the address above.

Noxious Times Editorial Staff: Steve Schoenig, Susan Monheit, Matt Caldwell.

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decision makers to justify expenditures to control invasive weeds such as yellow starthistle.

In order to gather the information required for informed decision-making, Dr. Mark E. Eiswerth and Dr. Wayne Johnson of the University of Nevada are conducting a survey of ranchers, farmers and other landowners. The survey will try to determine the scope of the cost of yellow starthistle in terms of control costs and loss of land productivity. The survey includes questions about land productivity and the extent of yellow starthistle invasion. Both the California Cattlemen's Association and The California Dept of Food and Agriculture endorse the survey which can be found online at <http://www.cdffa.ca.gov/weedhome/>. In addition to

the website, 1500 surveys have been mailed out to ranchers and farmers around the state. Please pass this information along to ranchers and farmers in your area. ❖



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California Representative Richard Pombo, is the main body now responsible for the bill's fate. Both the Resources Committee and the Agricultural Committee must approve the bill if it is going to make it to the house floor. While there are many supporters of the bill from various public and private agencies, it also has its opponents. During a House Resource Committee hearing on invasive species on April 29, a representative of the American Land Rights Association opposed the bill.



Senator Craig

The main purpose of the new program is to provide a more coordinated effect to disburse funds to local entities on the ground. The Secretary, in consultation with the National Invasive Species Council, the Invasive Species Advisory Committee, representatives from States and Indian tribes, and public and private entities,

would allocate these funds to state governments to support eligible weed management entities carrying out projects approved by states to control or eradicate noxious weeds on public and private lands.

Noxious weeds threaten fully two-thirds of all endangered species and are now considered by some experts to be the second most important danger to bio-diversity. Noxious weeds also increase soil erosion, which prevents recreationists and ranchers from accessing land that is infested with poisonous plants.

This bill is the house version of Senate Bill 144, the Noxious Weed Control Act of 2003 proposed by Idaho Senator Larry Craig. The Senate passed that bill on March 4. "This bill is a vital tool against the destructive scourge of noxious weeds. I hope to build on last year's success to move the legislation through both Senate and

House and to the President's desk for signature during this Congress," Senator Craig said in an earlier press release.

S.144 is identical to the bill that was passed by the Senate in November 2002 but was prevented from being considered by the House because of the press of time. The bill is the second of the Senator's two-pronged attack against noxious weeds in Idaho and across the nation. In 1996 Craig's "Plant Protection Act" was enacted into law. That bill primarily dealt with the Animal Plant Health Inspection Service's authority to block or regulate the importation or movement of a noxious weed and plant pest, and it also provides authority for inspection and enforcement of the regulations.

Information for contacting Representatives, bill info, and committee updates can be found through <http://thomas.loc.gov>, which provides legislative information on the internet. ❖

The California Department

Water Hyacinth Control Program: Past, present and future

Water hyacinth (*Eichhornia crassipes*) is a non-native invasive free-floating aquatic macrophyte belonging to the South American pickerelweed family (*Pontederiaceae*). Water hyacinth grows in wetlands, marshes, shallow water bodies, slow moving waterways, lakes, reservoirs, and rivers. The plant often forms large, thick mats that are monospecific in nature that can block waterways, impede navigation, impair agricultural practices (i.e., irrigation) and interfere with the pursuit of recreational activities.

By Cynthia Gause:
Environmental Scientist,
California Department of
Boating and Waterways

Water hyacinth reproduces sexually by seeds and vegetatively by budding and stolon

production. The water hyacinth growth cycle starts in spring when overwintering plants (old stem bases) initiate new growth by producing daughter plants. Daughter plants sprout from the stolons that increase in number during spring and summer. Seeds form in the submerged, withered flower that can germinate in a few days or remain dormant for 15-20 years. Water hyacinth has been reported to double their number in as little as six days. During high wind or river flow conditions, small floats of water

hyacinth often break-off from the larger mats and colonize new areas.

Water hyacinth plants have been known to exist in California as early as 1904 when its presence was discovered in Yolo County in a slough near the City of Clarkburg. The plant has since spread into the Sacramento-San Joaquin Delta (Delta) and Suisun Marsh. In



January 1982, Senator Garamendi introduced Senate Bill (SB) 1344 that would appropriate money and designate the California Department of Boating and Waterways (DBW) as the lead agency to develop and implement short- and long-range programs for the control of water hyacinth. Since SB 1344 became effective on 14 June 1982, DBW formed a Task Force to guide the development of the Water Hyacinth Control Program (WHCP).

A plan developed by the U.S. Army Corps of Engineers (Corps) Waterways Experiment Station (WES) designed a short- and long-term integrated program utilizing chemical, mechanical, and biological control measures. The short-term measures employed mechanical and chemical controls with the introduction of biological agents to provide the long-term control. Theoretically, as the biological agents become established, the need for chemical and mechanical controls could be reduced which would result in a decrease in the cost of the program.

In 1982, the water hyacinth-eating weevil, *Neochetina bruchi*, was released by the USAE and CDFA. Following the initial releases of *N. bruchi*, other host-specific species were released (*N. eichhorniae* and *Sameodes albiguttalis*). Due to funding limitations, efforts were limited to the release of the biological control agents with minimal to no maintenance to encourage population growth. Since the biological control agents would

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of Boating and Waterways

Egeria Densa Control: An aquatic weed challenge in the Sacramento/ San Joaquin Delta

In the past few decades, the Sacramento/San Joaquin Delta has proved vulnerable to noxious invasives. *Egeria densa* (Brazilian elodea), a fast growing submerged aquatic plant, is one such species that is having a significant negative impact on the Delta ecosystem. In the 40 years since *E. densa* was introduced to the Delta, it has grown to infest approximately 3,900 surface acres or 8% of

the 50,000 surface acres of Delta waterways. Through fragmentation this perennial plant spreads approximately

By Julie Owen:

Environmental Scientist,
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Boating and Waterways

100 acres a year, altering the natural aquatic landscape of important shallow water habitat.

E. densa forms dense mats from the floor to the surface of waterways. It influences the Delta's biological diversity, recreation, and agriculture. In the Sacramento/San Joaquin Delta it is crowding out native plants, slowing water flows, obstructing waterways, impeding anadromous fish migrating patterns, and clogging water intakes.

In January 1997, Assembly Bill 2193 designated the Department of Boating and Waterways (DBW) as the lead agency to develop a control program for *Egeria densa* in the Delta, its tributaries and the Suisun Marsh. From 1997 to March 2000, the DBW researched control management options, developed an EIR and entered in consultation with appropriate state and federal agencies. In August of 2001, the DBW began its *Egeria densa* Control Program (EDCP) using an adaptive management approach.

Effectively controlling *E. densa* in the Delta is a challenge because of hydrologic characteristics and tidal conditions. The DBW considered four control options: Mechanical harvesting and the use of three herbicides, Komeen (an organic-chelated copper



In the Sacramento/San Joaquin Delta, Egeria is crowding out native plants, slowing water flows, obstructing waterways, impeding anadromous fish migrating patterns, and clogging water intakes



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Hyacinth; continued from page 4...

require an extended amount of time to be established the short-term control methods were instituted.

The WES plan identified mechanical control measures that included in situ chopping, mechanical removal, and the use of barriers. Further investigation into mechanical control measures found that the ability to fund a large-scale mechanical removal program would be beyond the ability of DBW. A 1983 trial conducted by Contra Costa County determined that mechanical control measures would cost \$3,742.22 per acre, without disposal, versus \$62.00 for chemical control. Barriers had been found to be effective in small, dead-end slough situations and could also be used to retain material to provide habitat for the biological agents. However, considerable maintenance was required and failed to control water hyacinth in critical navigable waterways or near agricultural pumps. Contra Costa County also tried removal by hand with 150 volunteers and concluded that manual methods are completely ineffective.

Since the implementation of the WHCP the primary method of control has been accomplished by herbicide applications of 2,4-Dichlorophenoxyacetic acid, dimethylamine salt (2,4-D), diquat, or glyphosate. In 1999, the DBW was served with a notice of intent to file a citizen lawsuit, pursuant to the Clean Water Act that requires a National Pollutant Discharge Elimination System (NPDES) permit for discharges into navigable waters. In response, the DBW discontinued chemical applications during spring of 2000 to apply for a NPDES permit from the Central Valley Regional Water Quality Control Board (Regional Board) as well as consult with the National Marine Fisheries Service (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) regarding species listed under the Federal Endangered Species Act.

The issuance of the Individual NPDES permit from the

Regional Board and Biological Opinions (BOs) from NOAA Fisheries and the USFWS allowed the DBW to resume chemical applications in 2001. Due to monitoring limitations the chemicals currently being used are 2,4-D or glyphosate. The terms and conditions required by the NPDES permit and BOs have greatly reduced the duration of time that chemical treatment can be applied which has, consequently, reduced the effectiveness of the treatments.

With the reduced amount of time to chemically treat water hyacinth DBW has experienced difficulties in controlling areas that normally required little effort as well as preventing new infestations. Faced with this problem, DBW has been reassessing the alternative methods originally outlined in the WES plan to better suit the dynamics of the Delta. The alternative methods that the DBW is considering include biological control and physical removal.

The DBW is currently coordinating with the California Department of Food and Agriculture (CDFA) to establish larger populations of *N. bruchi* in an effort to implement an effective biological control program.

Recent surveys have shown that *N. bruchi* have spread throughout portions of the Delta, however, the small size of the resident populations have failed to be effective in the control of water hyacinth.

A winter-time handpicking project is expected to be implemented in the near future. Although past trials have found this method ineffective this method is being considered to help reduce the amount of water hyacinth to be chemically treated, reduce the amount of chemical usage, and maintain areas that are not accessible for chemical treatments.

Despite the many difficulties that the DBW has had to overcome since the inception of the WHCP the outlook is positive. It is anticipated that by adjusting the WES plan to the dynamics of the Delta the WHCP can be a more environmentally sensitive and effective program. ❖



Cynthia Gause (Environmental Scientist), John Chatfield (Calif. Dept. of Fish and Game Scientific Aide) following up treatments with water quality sampling.



Water hyacinth forms floating mats which break up and spread to another site forming a new infestation.

Egeria; continued from page 5...

product), diquat, and fluridone. There were no biological control methods available. Mechanical harvesting trials opened waterways temporarily. However, this method proved problematic mainly because harvesting increased the potential of *E. densa* to spread by producing plant fragments. In EIR trials, Komeen proved to be the most efficacious herbicide. However, the Water Quality Control Board limitations for copper prevented this option. The two main tools used by the EDCP program are: 1) the contact herbicide diquat and 2) the systemic herbicide fluridone. Neither one of these herbicides had been used before to control *E. densa* in a tidal system.

Other challenges to the control program are from new water quality guidelines and determinations of impacts to biological resources. For instance, a new National Pollutant Discharge Elimination System (NPDES) permit for Aquatic Pesticide Use is now required to address impacts to beneficial uses of U.S. waters. The NPDES permit requires an extensive monitoring plan including representative water sampling. Also, endangered species avoidance-mitigation has resulted in permit restrictions that include mid-summer start dates and a short application season. This means applications must occur well after ideal treatment periods. At this time, the DBW estimates that approximately two thirds of its weed control budget is dedicated to environmental monitoring and required research.

The DBW is still in a learning curve with its *Egeria densa* Control Program. In 2001, there seemed to be little efficacy in fluridone sites. Late start dates and maintaining herbicide concentrations in areas experiencing tidal currents were problematic. In July 2002, the DBW was able to begin fluridone treatments using a pellet with a new release-formulation that allowed the herbicide to maintain higher concentration levels in flow conditions. The DBW saw improved efficacy with this formulation but not as good as would occur if treatments began in early spring during the plant's active growth cycle.

Use of diquat has been problematic. There are concerns with: 1) potential to impact adjacent farm crops 2) ability to calculate an application amount that will both be in compliance with label and permit numerical limits and efficacy. If adjacent agricultural intakes transport water having high diquat concentrations onto sprinkler-irrigated crops, they could be damaged. When planning an application, the DBW must also consider localized hydrology dynamics, herbicide/water mixing time once the herbicide is injected into the water column, tide currents, depths, depth changes with tide, density of plant, turbidity, wind, and adjacent recreational activities.

Until NOAA-National Marine Fisheries Service (NMFS) determines that an earlier start date for fluridone is possible, the DBW is considering expanding its use of sequential applications of diquat then fluridone. This sequential method was proposed in a few sites in the EIR. In the 2002 application season, the DBW treated two sites using the sequential method. Using the

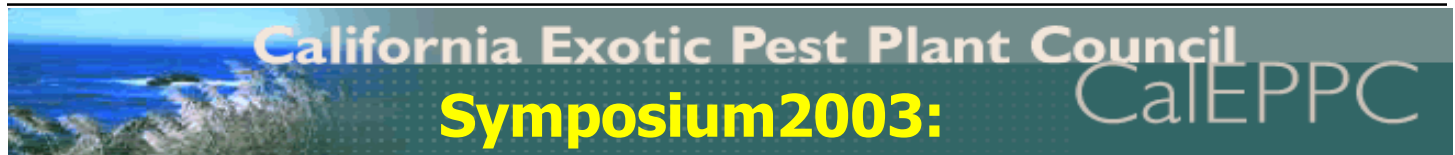


Boating and Waterways airboat mounted with device used to spread fluridone pellets

contact herbicide diquat, it was possible to kill a portion of the plant. This triggered new plant growth. After diquat was no longer in the aquatic system, the DBW applied fluridone. The fluridone impacted *Egeria densa* wherever new growth was occurring. The DBW saw greater efficacy with late season applications of fluridone using this method. Now that the new fluridone formulation makes it possible to use fluridone in areas with higher water circulation, the DBW is planning to expand this control method. The DBW intends to monitor the sequential option closely in order to determine if it is a viable solution to late-start date applications. Meanwhile, the DBW is cooperating on two salmon toxicity research projects in the anticipation that results will provide NMFS with the data needed to change start dates.

Given the complexity of the Delta and regulatory challenges, the *Egeria densa* Control Program is reliant on adaptive management and open communication with regulatory agencies. The DBW has taken a pro-environmental approach where it has consistently done more than the minimum when it comes to environmental monitoring and meeting permit requirements. One example of this is the completion of an extensive giant garter snake survey that exceeded permit requirements in both detail and scope. Additionally, the DBW often collects more than the required amount of water samples and hydrology data in order to operate with assurance that impacts are being minimized. So far, program implementation has been somewhat restrictive and challenging. However, the DBW believes that if it persists in an open-minded adaptive management approach and maintains good communication with regulatory agencies, ultimately, there will be success in control of this evasive plant. ❖

Julie Owen is the Environmental Scientist currently heading monitoring for the Egeria densa Control Program for the Aquatic Weed Unit at Boating and Waterways. She can be reached at JOWEN@dbw.ca.gov.



Planning Weed Management for Ecosystem Recovery

The topic of this years CalePPC Symposium, **October 2-4, 2003**, to be held at **Kings Beach in Lake Tahoe, CA.**

The **four main sessions** planned are:

- 1) Assessing, planning & setting priorities,
- 2) Working with ecosystem processes in recovery,
- 3) New management tools and techniques, and
- 4) Monitoring and evaluating recovery process.

Sample session presentations include:

- A watershed approach to *Arundo donax* removal and riparian restoration (Karen Gaffney, Circuit Rider Productions)
- Planning for weed control in the context of threatened and endangered species (Maria Ryan, University of Nevada Cooperative Extension)
- Trials (Stuart Gray, UAPTImberland/Western Shasta RCD)
- Managed Goat Grazing, It Works (Hugh and Sarah Bunten, Southern Oregon Goat Producers)
- Atmospheric CO₂ influences on recovery potential (Jay Arnone, Desert Research Institute)
- Nitrogen augmentation of soils (Jeff Corbin and Carla D'Antonio, USDA-ARS)
- Fire regimes and potential for recovery (Mike Pellat and Matt Brooks, USGS)
- Hydrological influences on recovery potential (Julie Stromberg, Arizona State University)
- What is recovery? Criteria for evaluation (Jeanne Chambers, US Forest Service)
- A decade of restoration at the Lanphere Dunes: Monitoring at multiple scales (Andrea Pickart, Humboldt Bay NWR)

Working groups topics include Nurseries, Risk assessment, Mapping strategies, Volunteers, Prescribed burns, Annual grasses, and Education and more.

For more information go to www.CalePPC.org, or contact Doug Johnson, Executive Director, at: dwjohnson@caleppc.org.

CALFLORA- Online Database now back online

From www.calflora.org

As of May 27, 2003, Calflora is back online. Calflora was previously forced to shut down on February 1, 2003 because of lack of funds. Calflora is a free, comprehensive database of plant distribution information for California, a web accessible, publicly available tool for synthesis of data from disparate sources.

A key piece of funding which would have secured operating expenses for the first quarter of 2003 fell through at the last minute. Without this funding, Calflora was forced to lay off staff and stop providing services through the Calflora.org website on January 31, 2003 when existing funding ran out. Monthly operating expenses in the first quarter of 2003 are \$30,000 per month for basic operations. In order to preserve the information contained in the Calflora Library, an orderly shutdown process began in mid January to ensure that Calflora could come back online at a future date.

Thankfully though, Calflora is back (www.calflora.org) with a new look, a new plan for supporting operating costs, and a new hosting service. In the past, the basic Calflora service has been funded mostly by grants from government agencies. Over the last year, this kind of support has dried up entirely. Calflora is not alone here— because of tighter government budgets, many non-profit organizations are having the same trouble, particularly in education and the environment.

We are happy to announce that the Calflora website is up and running on a new hosting service, with updated species data. Calflora is back with a leaner budget and a business

plan that calls for the basic service to be funded by donations from users. Calflora will continue to apply for grants to develop new services, but more than ever, they are relying on users for support and funding.

Calflora contains scientific information, species reports, distribution maps, synonymy information, and an observation library, all of which were unavailable when it shut down. Photo resources on California plants, including images donated from institutions, individuals, and those facilitated by Calflora, remained available through the UC Berkeley Digital Library Research Project CalPhotos website.

Calflora is designed to provide ready access to educational information, as well as scientific data needed to identify critical issues in conservation of plant diversity at varying scales and to analyze consequences of land use alternatives and environmental change on distribution of native and exotic species. It also serves research in ecology, botany, and conservation biology.

CalFlora is a community resource. It has been built by collaboration among people and institutions that have each brought different ideas, resources, and areas of expertise to our common effort. Stable funding for Calflora remains uncertain, with efforts to develop support from state & federal agencies, conservation organizations, foundations, and private individuals. The project welcomes donations, new collaborators, data contributors, and volunteers.

For more information please go to www.calflora.org ❖

The California Invasive Weed Awareness Coalition (CaliWAC) - UPDATE

The California Invasive Weed Awareness Coalition (CALIWAC) has been busy on legislative, policy, and public awareness campaigns this spring. Member groups, including the Regional Council of Rural Counties, California Cattlemen's Association, California Exotic Pest Plant Council, California Farm Bureau Federation, California Forest Pest Council, California Native Plant Society, are currently promoting California **Invasive Weed Awareness Week**, July 20-26. The coalition is organizing a Sacramento area weed tour for capitol legislative staffers, and we encourage Weed Management Areas and other local entities to organize tours for district legislative staff. Local groups put on a range of events for weed week last year, and we're excited to see what people come up with this year.

A major accomplishment has been the development of a draft statewide weed plan. The coalition worked with the California Department of Food & Agriculture (CDFA) to hold a summit April 2 in Sacramento. One hundred attendees worked hard to flesh out the details of a ten chapter weed plan that will provide a vision and blueprint for future weed work in the state. The draft is due out for public review this summer.

Member groups have been following weed legislation closely.

On the national level, **HR 119** and **HR 1080** are key bills. The first would provide \$100 million nationwide for WMA (Weed Management Area) activities. The second bolsters the National Aquatic Invasive Species Act. At the time of this writing, both remain in congressional committees for review. Stockton Congressman Richard Pombo chairs the House Natural Resources Committee, which will review both bills, and we are sharing our interests with his staff.

In California, **AB 66** from Assembly Member Tim Leslie's office would create an Adopt-A-Riverway program. This program would establish a system for private donations to fund local riparian restoration efforts. These funds would be available to WMAs and nonprofit conservation groups. Several CALIWAC groups are supporting the bill.

Budgets for state programs supporting weed work have not fared well during this latest cycle. Cuts of 50% are proposed for CDFA programs involved in early detection and in biocontrols. Cuts of 30% are proposed for UC Cooperative Extension staff. Some CALIWAC members have been active in advocating to restore these cuts, expressing that the long term societal costs will far outweigh the immediate budget savings.

More information on CALIWAC found at www.caleppc.org.

New aquatic weed guide now available

The California Weed Science Society is proud to sponsor the first comprehensive identification manual for aquatic and riparian weeds west of the Rocky Mountains. The document contains over 560 color photographs of 170 species! including submerged, floating leaf, and emergent aquatic weeds in rice production fields, water use systems, and wildland areas. The combination of color photos, text descriptions, keys, tables, and a glossary will increase the accuracy and speed of aquatic and riparian weed identification.

In addition to the individual description of species or related species, the text also contains: shortcut identification tables to groups that share similar, unusual or relatively uncommon characteristics; keys to floating-leaved and submerged aquatic weeds, pondweeds, and grasses or grass-like species comparison tables for difficult to identify groups illustrations, glossary of terms and bibliography of pertinent literature

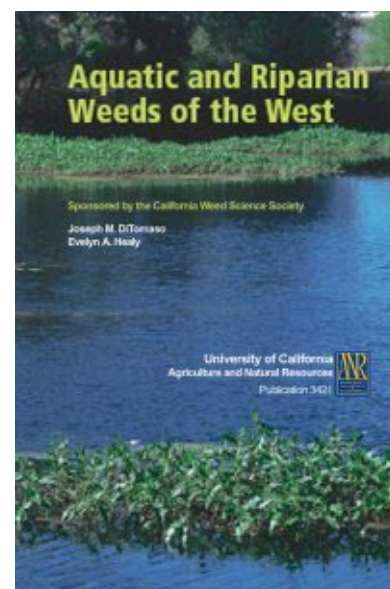
This is a valuable reference and field manual for weed control specialists, land managers, rice growers, golf course superintendents, landscape professionals, and anybody interested in learning more about identification of important weeds of aquatic and riparian systems.

Aquatic and riparian weeds are major problems in wildlands, rice production, and water use systems. This practical guide is a lavishly illustrated manual providing information on the identification and biology of several important weed species. Each species was researched to provide accurate information on the distribution, habitat, propagation and phenology, management considerations, and characteristics that allow distinguishing between similar or related species.

Joseph M. DiTomaso is a weed specialist at the University of California, Davis, with training in plant taxonomy and weed management. He was a co-author of the Weeds of the Northeast.

Evelyn Healy is a trained plant taxonomist, writer, and avid botanist.

For information about the book go to <http://caleppc.org> ❖



California's Most

Here at the Noxious times we've gathered information from counties around the state and compiled lists the worst weed offenders in each county. Most of the information comes directly from county personnel, or weed plans and brochures that WMAs or the counties have published. It is our hope that these lists will be used by counties to identify other counties dealing with the same problems, and that they will promote cooperation, information exchange, and provide encouragement among

Alameda, Contra Costa

1. Artichoke thistle
2. Purple Starthistle
3. Yellow Starthistle
4. Russian Knapweed
5. Medusahead
6. Barbed Goatgrass
7. Perennial Pepperweed
8. Hoary Cress
9. Oblong Spurge
10. White Horsenettle
11. Arundo *

12. Brazilian Waterweed
13. Water Hyacinth
14. European Cordgrass
15. Tamarisk

Alpine

1. Yellow Starthistle
2. Knapweeds (all)
3. Tall Whitetop
4. Canadian Thistle
5. Musk Thistle
6. Scotch Thistle
7. Hoary Cress

Butte

1. Skeleton weed
2. Purple loosestrife
3. Perennial peppergrass
4. Italian thistle
5. Parrots feather
6. Tamarisk
7. Arundo
8. French broom
9. Oblong spurge
10. Ailanthus (tree of heaven)

Calaveras/ Tuolumne

1. Yellow Starthistle
2. Scotch, Spanish

Top Ten Noxious

California WMA's were polled to find out which noxious weeds are currently the biggest problems in each county. Their responses were compiled to find the ten most offensive weeds in the state.

1. Yellow Starthistle,
Centaurea solstitialis (35)
2. French, Scotch & Spanish Brooms,
Genista monspessulana,
Cytisus scoparius, *Spartium junceum*(35)
3. Giant Reed, *Arundo donax* (23)
4. Pampas/Jubata Grass,
Cortaderia selloana, *Cortaderia jubata* (23)
5. Perennial Pepperweed,
Lepidium latifolium (24)
6. Spotted & Squarous Knapweed,
Centaurea maculosa,
Centaurea squarrosa (18)



* Arundo, a.k.a. Giant Reed

fellow weed warriors. The information listed below is not intended to be a definitive lists of the only weeds causing problems, but rather a starting point for finding help. Collaboration and the sharing of information across county boundries can't help but lead to new perspectives, and methods of addressing problems. The top ten noxious weeds each county is currently dealing with have been compiled into a *Most Unwanted* summary Table on page 17.

12. Hoary Cress

El Dorado

1. Spotted knapweed
2. Yellow starthistle
3. Dalmatian toadflax
4. Diffuse knapweed
5. Tall whitetop
6. Scotch broom
7. Tree of Heaven
8. Oblong spurge
9. Tamarisk
10. Musk Thistle

Fresno, Madera, Mariposa

1. Yellow Starthistle
2. Diffuse, Spotted Knapweeds
3. Bull Thistle
4. Italian Thistle
5. Scotch, Spanish Brooms
6. Klamathweed, St. Johnswort
7. Arundo
8. Perennial Pepperweed
9. Himalayan Blackberry

Humboldt

1. Scotch Broom

2. Pampas Grass

3. Gorse

4. Himalaya Blackberry



* Klamath Weed

5. English Ivy
6. Cape Ivy
7. European Beachgrass
8. Iceplant
9. Yellow Bush Lupine
10. Yellow Starthistle
11. Spotted & Diffuse Knapweeds
12. Canada Thistle
13. Bull Thistle
14. Common Reed
15. Spanish Heath
16. Chilean Cordgrass

Imperial

1. Puncturevine
2. Johnsongrass
3. Camelthorn



Tree of Heaven

4. Saltcedar
5. Hydrilla
6. Dudaim Melon
7. Any other A rated weeds

Inyo/Mono

1. Perennial Pepperweed
2. Saltcedar
3. Scotch Thistle
4. Canada Thistle
5. Spotted Knapweed
6. Camelthorn
7. Russian Knapweed
8. Dalmatian Toadflax
9. Halogeton
10. Yellow Starthistle

Kern

1. Yellow Starthistle
2. Bull Thistle
3. Puncturevine
4. Russian Thistle
5. Russian Knapweed
6. Tamarisk

7. Purple Loosestrife
8. Tree of Heaven
9. Pampas grass
10. Perennial Pepperweed
11. Nut Grass
12. Dalmatian Toadflax
13. Scotch Thistle
14. Halogeton
15. Harmel
16. Spotted Knapweed

Kings

1. Alligatorweed
2. Arundo
3. Silverleaf Nightshade
4. Russian Knapweed
5. Perennial Pepperweed
6. Puncturevine
7. Yellow Starthistle
8. Fleabane
9. Russian Thistle

Lake

1. Hydrilla
2. Eurasian Watermilfoil
3. Water Hyacinth
4. Water Primrose
5. Arundo
6. Scotch and French Brooms
7. Medusahead
8. Milk Thistle
9. Puncturevine
10. Tamarisk
11. Yellow Starthistle
12. Tree of Heaven
13. Perennial

Pepperweed

Lassen

1. Spotted Knapweed
2. Perennial Pepperweed
3. Scotch Thistle
4. Yellow Starthistle

Los Angeles

1. Arundo
2. Perennial Pepperweed
3. Yellow Starthistle
4. Tamarisk
5. Castor Bean
6. Tree of Heaven
7. Alligatorweed
8. Halogeton
9. Spotted Knapweed
10. Scotch Broom
11. Johnsongrass
12. Geraldton Carnation
- Spurge
13. Distaff Thistle
14. Cape Ivy

Marin/Sonoma

1. Yellow Starthistle
2. Scotch, French Brooms



Scotch Broom

3. Medusahead
4. Oblong Spurge
5. Italian Thistle
6. Arundo
7. Barbed Goatgrass
8. Pampas Grass
9. Purple Starthistle
10. Distaff thistle
11. Gorse
12. Cape Ivy

Mendocino

1. Scotch & French Brooms
2. Andean Pampas Grass & Pampas grass
3. Yellow Starthistle
4. Gorse
5. Barbed Goat Grass
6. Medusa Head
7. Ice Plant
8. Cape Ivy
9. Arundo
10. Tamarisk
11. Purple Starthistle
12. Spotted Knapweed
13. Smooth Distaff Thistle
14. Woolly Distaff Thistle
15. Fireweeds.

Merced,

San Joaquin, Stanislaus

1. Yellow Starthistle
2. Water Hyacinth
3. Puncture vine
4. Johnsongrass
5. Russian thistle
6. Egeria densa
7. Spiny cocklebur
8. Purple starthistle
9. Purple nutsedge

10. Italian or slenderflowered thistle

Modoc

1. Tall Whitetop
2. Dyers Woad
3. Yellow Starthistle
4. Dalmation toadflax
5. Diffuse knapweed
6. Musk thistle
7. Perennial sowthistle
8. Plumeless thistle
9. Scotch thistle
10. Spotted knapweed
11. Squarrose knapweed
12. Yellowspine thistle

Monterey

1. All A-rated weeds (e.g. Scotch thistle, taurian thistle, puna grass, fertile capeweed, skeletonweed)
2. Arundo
3. Barbed Goat Grass
4. Cape Ivy
5. Fennel
6. French Broom
7. Ice plant
8. Italian thistle
9. Medusa Head
10. Pampas grass, and jubata grass
11. Scotch broom
12. Tamarisk
13. Yellow Starthistle
14. Veldt grass

Nevada/Placer

1. Spotted Knapweed
2. Yellow Starthistle
3. Scotch Thistle
4. Azolla



Hydrilla

5. Medusahead
6. Gorse
7. Purple Starthistle
8. Hoary Cress
9. Scotch, Spanish Brooms
10. Musk Thistle
11. Dalmation Toadflax
12. Perennial Pepperweed

Plumas/Sierra

1. Dalmatian toadflax
2. Diffuse knapweed
3. Dyer's woad
4. Musk thistle
5. Perennial Pepperweed /Tall Whitetop
6. Rush skeletonweed
7. Scotch thistle
8. Scotch broom
9. Spotted knapweed
10. Yellow starthistle



Pampas Grass

San Benito

1. Yellow Starthistle
2. Purple Starthistle
3. Artichoke Thistle
4. Arundo
5. Klamathweed
6. French and Scotch Broom
7. Bull, Canada, Italian, Scotch and Milk Thistles.
8. Perennial Pepperweed
9. Puna grass

San Bernadino

1. Arundo
2. Yellow Starthistle
3. Pampas Grass
4. Jubata Grass
5. Castor Bean
6. Cape Ivy
7. French Broom
8. Scotch Broom

9. Spanish Broom**San Diego**

1. Perennial Pepperweed
2. Pampas Grass
3. Arundo donax
4. Purple loosestrife
5. Yellow Starthistle
6. Purple Starthistle
7. Tamarisk
8. Castor Bean
9. Wild Fennel
10. Spanish Broom
11. Asphodelus fistulosus

San Luis Obispo

1. Yellow Starthistle
2. Artichoke Thistle
3. Hoary Cress
4. Purple Starthistle
5. Wooly Distaff Thistle
6. French, Spanish Brooms
7. Arundo

8. Pampas grass, Jubatagrass
9. Cape Ivy

San Mateo

1. Yellow Starthistle
2. Jubata Grass
3. Pampas Grass
4. French Broom
5. Scotch Broom
6. Cape Ivy



Diffuse Knapweed

7. Gorse
8. Fennel
9. Arundo
10. Tree of Heaven
11. Italian Thistle
12. Atlantic Cordgrass
13. English Ivy
14. Bull Thistle
15. Harding Grass

16. Puncturevine*
17. Purple Starthistle

Santa Barbara

1. Yellow Starthistle
2. Tocalote
3. Arundo
4. Pampas grass
5. Jubata grass
6. Purple starthistle
7. Puna grass
8. Tree of heaven
9. Asphodelus
10. Eupatory
11. Artichoke thistle
12. Cape ivy

Santa Clara

1. Arundo (Giant Reed)
2. Yellow Starthistle
3. Artichoke Thistle
4. Tree of Heaven
5. Puncturevine
6. French, Scotch and Spanish Brooms



Purple Starthistle



Water Hyacinth

7. Purple Starthistle
8. Italian Thistle
9. Cape Ivy
10. Pampas and Jubata Grasses
11. Eucalyptus
12. Perennial Pepperweed

Santa Cruz

1. French, Scotch and other Brooms
2. Jubata and Pampas Grasses
3. Cape Ivy
4. English Ivy
5. Iceplant
6. Periwinkle
7. Eucalyptus
8. Acacia
9. Himalaya Berry

Shasta

1. Perennial Pepperweed
2. Squarrose Knapweed

3. Spotted Knapweed
4. French Broom
5. Scotch, Spanish Brooms
6. Tree of Heaven aka Ailanthus
7. Arundo
8. Yellow Starthistle

Solano

1. Yellow Starthistle
2. Purple Starthistle
3. Arundo
4. Pampas, Jubata Grass
5. Common Reed
6. Barbed Goatgrass
7. Artichoke Thistle
8. Tamarisk
9. Puncturevine
10. Medusahead
11. Perennial Pepperweed

Siskiyou

1. Yellow Starthistle
2. Dyers Woad
3. Musk Thistle



*Puncture vine

4. Leafy Spurge
5. Puncturevine
6. Spotted & Diffuse Knapweeds
7. Dalmation Toadflax
8. Scotch Broom
9. Squarrose Knapweed
10. Canada Thistle
11. Rush Skeletonweed
12. Purple Loosestrife
13. Perennial Pepperweed
14. Scotch Thistle

- Waterprimrose
9. Parrotfeather
10. Purple Loosestrife
11. Perennial Pepperweed
12. Hydrilla

Trinity

1. Tree of Heaven
2. Scotch Broom
3. Spotted Knapweed
4. Yellow Starthistle
5. Dalmation Toadflax
6. Dyer's Woad,

Sutter/Yuba

1. Yellow Starthistle
2. Arundo
3. Scotch Broom
4. Tamarisk
5. Puncturevine
6. Himalayan Blackberry
7. Rush Skeletonweed
8. Creeping



Perennial Pepperweed

- Diffuse Knapweed
7. Klamathweed
8. Himalayan Blackberry
9. Hoary Cress
10. Non Native Annual Grasses

Tulare

1. Yellow Starthistle
2. Bull Thistle
3. Italian Thistle
4. Scotch Thistle
5. Milk Thistle
6. Russian Thistle
7. Arundo
8. Cocklebur
9. Spanish Broom
10. Tocalote
11. Tree of Heaven
12. Puncturevine

Yolo

1. Barbed Goatgrass
2. Medusahead
3. Yellow Starthistle
4. Iberian Thistle
5. Perennial Pepperweed
6. Puncturevine

7. Rush
- Skeletonweed
8. Klamathweed
9. Tree of Heaven
10. Arundo
11. Tamarisk
12. Water Hyacinth

Comprehensive Tally of County Weed Species

Below is a comprehensive list of all weed species named by the Counties that responded to this poll. The most widespread weeds are highlighted at the beginning of this article on page 8. (Note: acreage not evaluated)

Common Name	Scientific Name	# Co.	Common Name	Scientific Name	# Co.
Acacia	<i>Acacia spp.</i>	1	Italian Thistle	<i>Carduus pycnocephalus</i>	11
Alligatorweed	<i>Alternanthera philoxeroides</i>	2	Johnsongrass	<i>Sorghum halepense</i>	3
Artichoke thistle	<i>Cynara cardunculus</i>	6	Klamathweed,		
Asphodelus fistulosus	<i>Asphodelus fistulosus</i>	2	St Johnswort	<i>Hypericum perforatum</i>	8
Atlantic Cordgrass	<i>Spartina spp</i>	1	Leafy Spurge	<i>Euphorbia esula</i>	1
Azolla	<i>Azolla spp.</i>	1	Medusahead	<i>Taeniatherum</i>	
Barbed Goatgrass	<i>Aegilops triuncialis</i>	7		<i>caput-medusae</i>	11
Brazilian Waterweed	<i>Egeria densa</i>	1	Milk Thistle	<i>Silybum marianum</i>	3
Bull Thistle	<i>Cirsium vulgare</i>	5	Musk Thistle	<i>Carduus nutans</i>	6
Camelthorn	<i>Alhagi pseudalhagi</i>	2	Nut grass	<i>Cyperus spp.</i>	2
Canada Thistle	<i>Cirsium arvense</i>	5	Oblong Spurge	<i>Euphorbia oblongata</i>	5
Cape Ivy	<i>Delairea odorata</i>	12	Pamapass &	<i>Cortaderia selloana,</i>	
Castor Bean	<i>Ricinus communis</i>	3	Jubata Grass	<i>Cortaderia jubata</i>	23
Chilean Cordgrass	<i>Spartina densiflora</i>	1	Parrotfeather	<i>Myriophyllum aquaticum</i>	2
Cocklebur	<i>Xanthium spp.</i>	1	Perennial Pepperweed	<i>Lepidium latifolium</i>	24
Common Reed	<i>Phragmites australis</i>	2	Perennial sowthistle	<i>Sonchus arvensis</i>	1
Dalmation toadflax	<i>Linaria genistifolia</i>	9	Periwinkle	<i>Vinca major</i>	1
Diffuse Knapweed	<i>Centaurea diffusa</i>	9	Plumeless Thistle	<i>Carduus acanthoides</i>	2
Distaff Thistle	<i>Carthamus lanatus</i>	4	Puna grass	<i>Achnatherum brachychaetum</i>	2
Dudaim Melon	<i>Cucumis melo</i>	1	Puncturevine	<i>Tribulus terrestris</i>	14
Dyer's Woad	<i>Isatis tinctoria</i>	4	Purple loosestrife	<i>Lythrum salicaria</i>	5
Egeria densa	<i>Egeria densa</i>	1	Purple nutsedge	<i>Cyperus rotundus</i>	1
English Ivy	<i>Hedera helix</i>	3	Purple Starthistle	<i>Centaurea calcitrapa</i>	14
Eucalyptus	<i>Eucalyptus globulus</i>	2	Rush Skeletonweed	<i>Chondrilla juncea</i>	7
Eupatory	<i>Ageratina adenophora</i>	1	Russian Knapweed	<i>Acroptilon repens</i>	4
Eurasian Watermilfoil	<i>Myriophyllum spicatum</i>	1	Russian Thistle	<i>Salsola tragus</i>	5
European Beachgrass	<i>Ammophila arenaria</i>	1	Saltcedar	<i>Tamarix ramosissima</i>	16
European Cordgrass	<i>Spartina anglica(?)</i>	1	Scotch thistle	<i>Onopordum acanthium</i>	11
Fennel	<i>Foeniculum vulgare</i>	3	Silverleaf nightshade/		
Fireweeds.	<i>Erechtites spp.</i>	1	White horsenettle	<i>Solanum elaeagnifolium</i>	3
Fleabane	<i>Erigeron foliosus (?)</i>	1	Smooth Distaff Thistle	<i>Carthamus baeticus</i>	1
French broom,	<i>Genista monspessulana,</i>		Spanish Heath	<i>Erica lusitanica</i>	1
Scotch broom, and	<i>Cytisus scoparius,</i>		Spiny cocklebur	<i>Xanthium spinosum</i>	2
Spanish Broom	<i>Spartium junceum</i>	35	Spotted Knapweed	<i>Centaurea maculosa,</i>	
Geraldton Carnation			Squarrose Knapweed	<i>Centaurea squarrosa</i>	19
Spurge	<i>Euphorbia terracina</i>	1	Tarweed	<i>Holocarpha virgata</i>	1
Giant Reed	<i>Arundo donax</i>	23	Tocalote	<i>Centaurea melitensis</i>	2
Gorse	<i>Ulex europaeus</i>	5	Tree of Heaven,		
Halogeton	<i>Halogeton glomeratus</i>	3	Ailanthus	<i>Ailanthus altissima</i>	15
Harding Grass	<i>Phalaris aquatica</i>	1	Veldt grass	<i>Ehrharta spp.</i>	1
Harmel	<i>Peganum harmala</i>	1	Water Hyacinth	<i>Eichhornia crassipes</i>	4
Himalayan Blackberry	<i>Rubus discolor</i>	5	Water Primrose	<i>Ludwigia uruguayensis</i>	2
Hoary Cress	<i>Cardaria draba</i>	6	Yellow Starthistle	<i>Centaurea solstitialis</i>	35
Hydrilla	<i>Hydrilla verticillata</i>	3	Yellowspine thistle	<i>Cirsium ochrocentrum</i>	1
Iberian Thistle	<i>Centaurea iberica</i>	1			
Ice plant	<i>Mesembryanthemum</i>				
	<i>crystallinum</i>	4			

Forest Service Chief cites invasives as a key problem facing National Forest managers

Forest Service Chief Dale Bosworth declared invasive species one of four major problems facing the National Forest system during an Earth Day speech in San Francisco. In his speech at the Commonwealth Club on April 22, Bosworth explained the four areas which pose the biggest threats to national forest land: fire and fuels; invasive species; habitat fragmentation; and unmanaged recreation. Bosworth, who has been Chief of the Forest Service for 2 years, grew up on forest service lands and has worked for the Forest Service for 37 years.

The following is an excerpt of Forest Service Chief Dale Bosworth's Earth Day speech.

Invasive Species

"The second great issue is the spread of invasive species. We used to focus just on noxious weeds. But now we know that the issue is far broader.

California alone has more than a thousand nonnative species, including invasive weeds like cheatgrass, brooms, and thistles. These plants soak up the water and take up the space, driving out the native plants. One example on the national forests south of here is giant reed. It dries up creeks and destroys habitat needed by at least four threatened and endangered species, including the California red-legged frog. We're losing our national treasures.

Nationwide, invasive weeds now cover an area about a third larger than the state of California. Each year, they gobble up an area larger than Napa and Sonoma Counties combined. Areas infested with weeds like leafy spurge lose almost all their forage value for both livestock and wildlife.

Invasives are not limited to plants. A big threat to red-legged frog is the bullfrog, which isn't native here. Non-native fish have driven more than half of the fish species native to the arid Southwest to the edge of extinction. Chestnut blight

alone virtually wiped out an entire forest type in the East, the oak/chestnut forest. Every region has its own major problem with invasive and nonnative species—gypsy moth in the Northeast, kudzu vine in the South, white pine blister rust in the West. All invasives combined cost Americans about \$138 billion per year in total economic damages and associated control costs.

The ecological costs are even worse. The Nature Conservancy and NatureServe sponsored a recent study on the major causes of biodiversity loss in the United States. The study found that invasives have contributed to the decline of almost half of all imperiled species.

So this is a huge issue for the Forest Service, and it should be for all Americans. Public lands—especially federal lands—have become the last refuge for endangered species—the last place where they can find the habitat they need to survive. If invasives take over, these imperiled animals and plants will have nowhere else to go.

The problem is, Americans have become too focused on the symptoms of the problem—individual endangered species. We do have to manage specific habitats for species at risk; I strongly support the Endangered Species Act. But we've also got to consider long-term outcomes across the entire landscape. If we're going to rise to landscape-level challenges like catastrophic fire or invasive species, then we've got to do both. We can't focus entirely on individual species.

So the great diversion is all the publicity surrounding individual endangered species and the efficacy of the regulatory system. This or that species becomes a poster child for inflaming passion and fueling debate. As a result, most of our time and energy is spent on this or that individual species—like Canada lynx or spotted owl—and not enough on the underlying issues—things like invasive species. We need to focus more on the causes of



Forest Service Chief Dale Bosworth

biodiversity loss on a landscape level—habitat loss and invasives—and less on the symptoms—the poster children—this or that individual species. (...)

Spirit of Earth Day

In closing, let me summarize: We've got four great issues facing us as we open this century—fire and fuels; invasive species; habitat fragmentation; and unmanaged recreation. Unfortunately, we've also got some great diversions, like logging and roadbuilding. In that connection, let me go back to that study on biodiversity loss by The Nature Conservancy and NatureServe.

The study ranks the causes of biodiversity loss. Invasive species are at the top of the list. Farther down come land conversion for development; outdoor recreation; and disrupted fire regimes—fire and fuels. Toward the bottom of the list you finally get to the combined effects of logging and logging roads. Even OHV use alone affects more imperiled species than logging and logging roads combined.

So why do we spend so much of our time debating logging and roads? Shouldn't we be focusing more on these other issues instead?

With that said, the study did find that

logging and logging roads do affect some imperiled species. It's not necessarily on the national forests, because the study covered the whole United States. But I still think that's unacceptable. That's why the Forest Service is so careful about designing our vegetation management projects to achieve the desired future condition. In fact, our vegetation treatments are often wholly or partly designed exactly for that purpose—to protect long-term biodiversity.

Is it working? Well, another study sponsored by The Nature Conservancy and NatureServe points out something interesting: The greatest number of imperiled species in the United States is not found on wildlife refuges or national parks, where some people might expect. It's found on the National Forest System. It's about a quarter of all imperiled species nationwide—26 percent. It's about half

of all the populations of federally listed species found on federal lands.

Why? Is it because the Forest Service is doing something to endanger these species? No, it's because the national forests and grasslands have always been the best refuges—the best places for endangered species to make a final stand. That's why it's so important to address the great issues—fire and fuels, invasive species, habitat fragmentation, and unmanaged recreation. These are the biggest threats to biodiversity on the national forests and grasslands. We must actively manage them if we truly want to keep national forests as America's last, best refuges.

That brings me back to Earth Day. Like the founders of Earth Day, the Forest Service recognizes our enormous responsibility to protect America's species at risk. But we can't do it alone. We can't

do it as long as we as a nation let ourselves get distracted by the great diversions. We can't do it unless all of us start focusing on the great issues—fire and fuels, invasive species, habitat fragmentation, and unmanaged recreation.

I think that's what Earth Day is all about. It's about a shared responsibility to care for the land. We're all in this together. The national forests and grasslands are great national treasures. We all cherish these lands and the values they protect—wildlife, water, forests, and more. We are all concerned about their health. For the sake of the future, I think we've got to come together. We've got to stop focusing on the great diversions and start focusing on the great issues. We owe our children and grandchildren at least that much." ❖



Portable Agricultural Soil Wash

TOOL BOX highlights new tools that might integrate well into local weed management tool boxes. Noxious Times does not specifically endorse tools featured, but rather strives to provide baseline data that will lend towards further examination and research on the part of the user.

The unit will cleanse all size vehicles, including Transports
 Measurements are 10' x 48'
 Contains approximately 1,000 gallons of grey water
 Six under sprays, that can be turned on or off
 2" High Pressure Pump that runs the unit and Pressure Washers
 The unit comes complete with a 3,000-gallon Water Tender, 1,850- gallon Grey Water Truck with a 3" Vacuum Pump and operators
 Two years experience with CDF and USDA Forest Service

For more information, please contact Theresa at tisabell@onemain.com



Upcoming Events:

CALEPPC Symposium:

Planning Weed Management for Ecosystem Recovery. Four Sessions include: (1) Assessing, planning & setting priorities, (2) Working with ecosystem processes in recovery, (3) On-the-ground techniques, and (4) Monitoring and evaluating recovery process. **October 2-4, 2003. King's Beach, Lake Tahoe.**

For more information access SFEI's website at www.caleppc.org

SERCAL 10th Annual Conference: Restoration: What's Working, Whats Not, and How Do We Know?

Workshops include: (1) Restoring "Living Rivers": From Stream Classification to Process-Based River Restoration, (2) Restoration on Drastically Disturbed Soils, (3) The Biology of Mycorrhizae and Implications for Restoration, (4) Using Planned Grazing in the Management of Native Grasslands, and (5) SERCAL Dunes Guild Annual Workshop. **Technical Sessions:** Issues in Restoration of CA Coastal Sage Scrub and Grasslands Habitats, 2) California Coastal Systems Restoration, and 3) Restoration on Drastically Disturbed Sites. **Sept 28 - Oct 1, 2003. Asilomar Conference Grounds, Monterey, CA.**

For more information access SFEI's website at www.sercal.org

San Francisco Estuary Project:

Sixth Biannual State of The Estuary Conference, 2003. Celebrating the 10th Anniversary of the Comprehensive Conservation Management Plan (CCMP). The conference will focus on the dramatic changes to the Bay-Delta Estuary, the rapidly changing state of scientific knowledge about the Estuary, and the implications of these changes on the future. **October 21, 22 & 23, Oakland Museum of California.**

State-Wide Weed Awareness Week: California Invasive Weed Awareness Week is July 20-26.

One good way to mark the week is by holding a weed tour. Several counties did so last year, and others are encouraged to do so this year. Tours can be small or large, the point is to expose the community to local weed problems and what you're doing about them. For ideas on organizing your weed tour see CalEPPC website at: http://groups.ucanr.org/ceppc/Organizing_a_weed_tour/.

SFEI Presents:

Invasive Plant Control Guidebook:

Plants contained in this guide are considered to represent some of the most significant threats to Bay and Delta waterways and wetlands. Anyone can use this book to identify serious plant invasions to aquatic and wetland habitats of the SF Bay-Delta and watershed. **Now Available** through **San Francisco Estuary Institute (SFEI).**

For more information access SFEI's website at <http://www.sfei.org/nis/>.

Wildlife Society, Western Section:

Invasive Animal Symposium: Accidental and Purposeful Introductions of Animals: Investigating Species Interactions at Different Trophic Levels.

Sponsored by the Western Section of The Wildlife Society **October 14-16, 2003.** Radisson Hotel **Sacramento**, California.

Introduced vertebrate species and their interactions with native animal and plant species will be the central theme of the symposium. **More information** is available at <http://www.tws-west.org/meetings.html#apia>.



CALIFORNIA INTERAGENCY
NOXIOUS WEED
COORDINATING COMMITTEE
NOXIOUS TIMES

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